

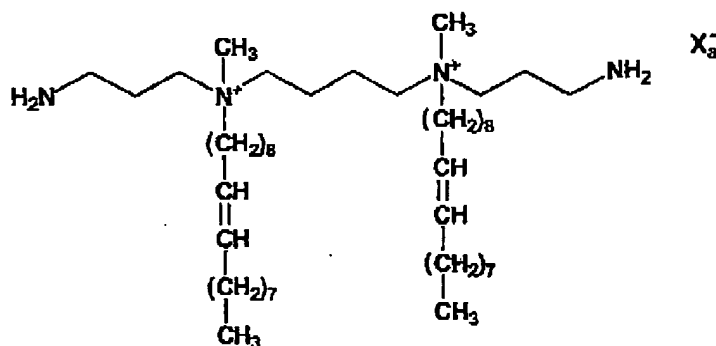
Amendments to the Claims:

This listing of claims will replace all prior version and listing of claims in the application.

Listing of the claims

1-9. (Canceled)

10. (Previously presented) A compound having the formula:

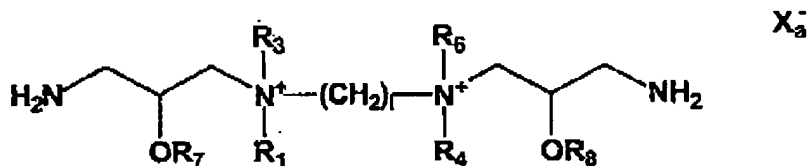


wherein

$\text{X}^-$  is a physiologically acceptable anion; and  $a$  is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion.

11. (Canceled)

12. (Currently amended) A compound having the formula:



wherein

$X^-$  is a physiologically acceptable anion;

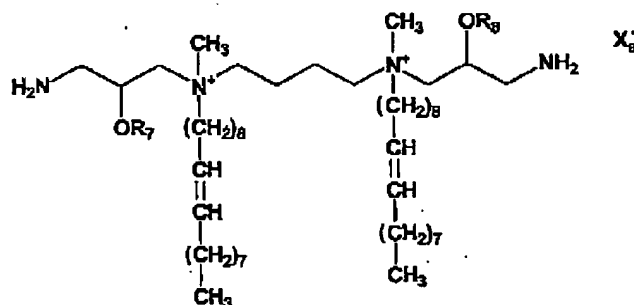
$a$  is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion;

$R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , independently of one another, are selected from the group consisting of H, an alkyl group, an alkenyl group, an alkynyl group, and an aryl group, wherein any one of  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$  are optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group, and at least two of  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , are straight-chain, branched, or cyclic alkyl, alkynyl, or alkenyl or aryl groups having from 8 to about 24 carbon atoms attached to each N and  $R_1$ ,  $R_3$ ,  $R_4$  and  $R_6$  may optionally be covalently linked with each other;

$R_7$  and  $R_8$  are independently H or a carbohydrate; and

$l$  is an integer from 1 to about 4.

13. (Previously presented) The compound as claimed in claim 12, which is:

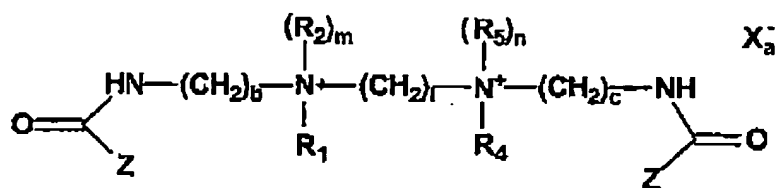


wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

14. (Previously presented) The compound as claimed in claim 13, wherein  $R_7$  and  $R_8$  are H.

15. (Canceled)

16. (Previously presented) A compound having the formula:



wherein

R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>5</sub>, independently of one another, are selected from the group consisting of H, an alkenyl group, an alkynyl group, and an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group, and at least two of R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>5</sub> are a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms attached to each N;

Z is selected from the group consisting of spermiyl, spermidyl, amino acid, peptidyl, diaminoalkyl, and polyamine:

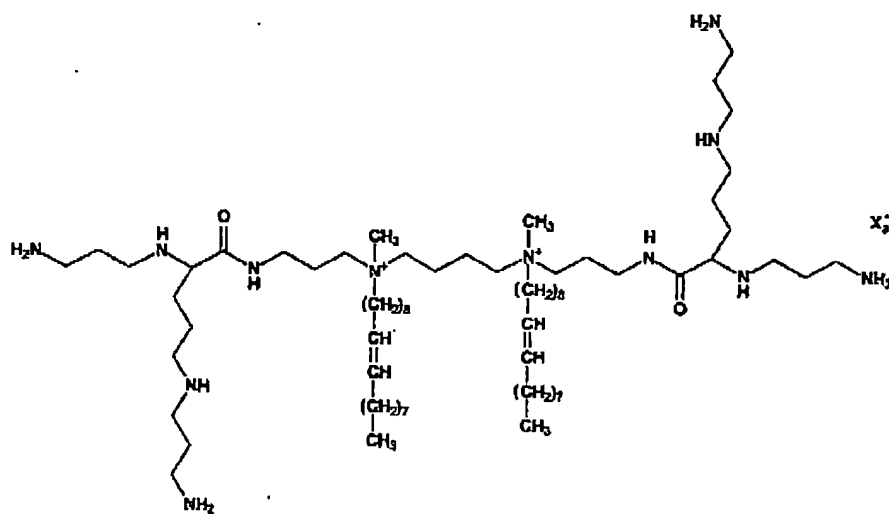
**X<sup>-</sup> is a physiologically acceptable anion:**

**m and n are 0 or 1:**

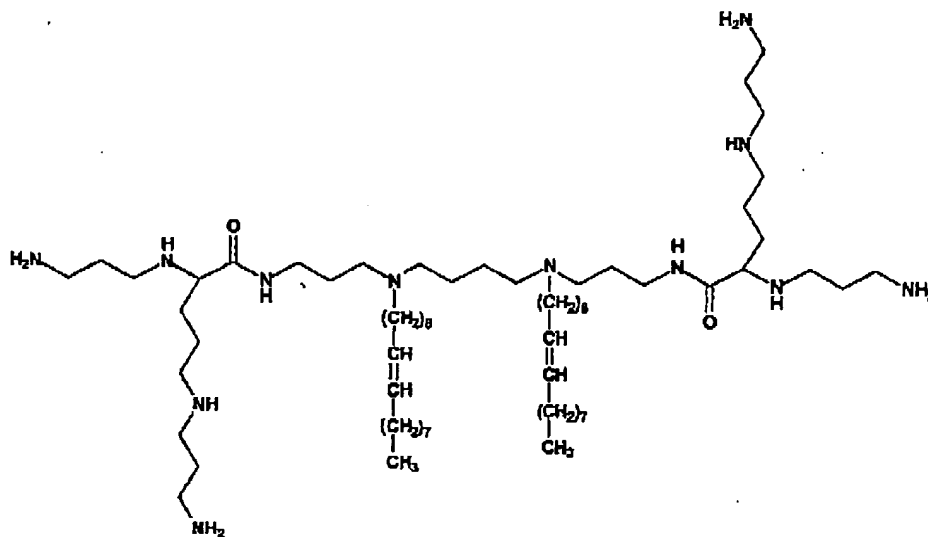
1, b and c are integers independently selected from 1 to about 4; and

a is the number of positive charges in the compound divided by the valence of the anion.

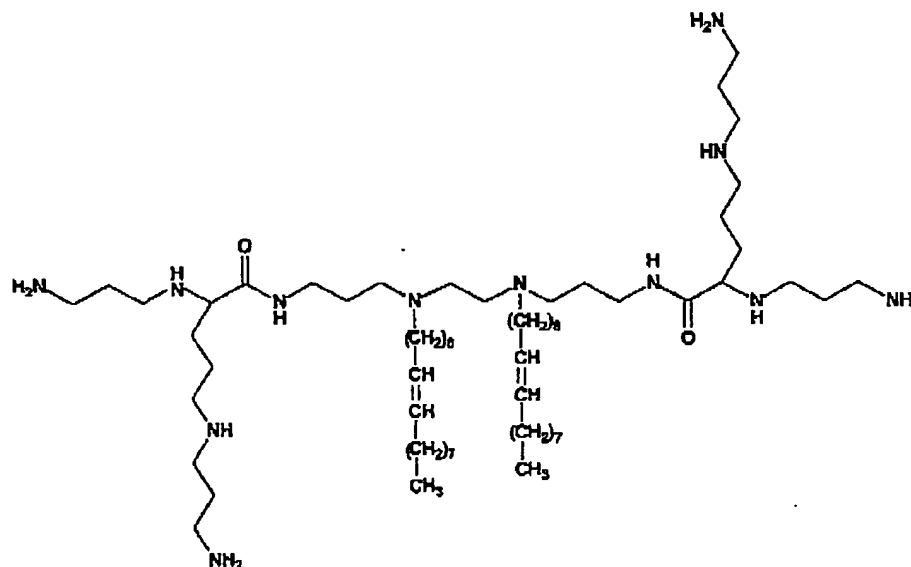
17. (Previously presented)The compound as claimed in claim 16, which is:



18. (Previously presented) The compound as claimed in claim 16, which is:

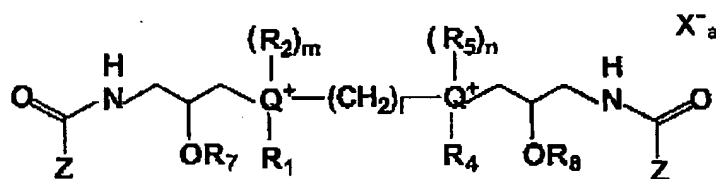


19. (Previously presented) The compound as claimed in claim 16, which is:



20. (Canceled)

21. (Currently amended) A compound having the formula:



wherein

Q is N;

X<sup>-</sup> is a physiologically acceptable anion;

a is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion;

$R_1$  and  $R_4$ , independently of one another, are selected from the group consisting of H,  $-(CH_2)_p-D-Z$ , an alkyl group, an alkyl ether group, an alkenyl group, an aryl group, and an alkyl or alkyl ether group substituted by one or more of an alcohol, an aminoalcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, an alkylthio, a urea, a thiourea, a guanidyl, or a carbamoyl group,  $R_1$  and  $R_4$  may optionally be covalently linked with each other, to form a cyclic moiety; at least one of  $R_1$  and  $R_4$  is a straight-chain, branched, or cyclic alkyl, alkenyl, or alkynyl or aryl group having from 8 to about 24 carbon atoms;

$R_2$  and  $R_5$ , independently of one another, are selected from the group consisting of H, an alkenyl group, an alkynyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

Z is selected from the group consisting of spermyl, spermidyl, aminoacid, peptidyl, diaminoalkyl, and polyamine;

D is N, O, S, or a bond;

$R_7$  and  $R_8$  independently are H or a carbohydrate;

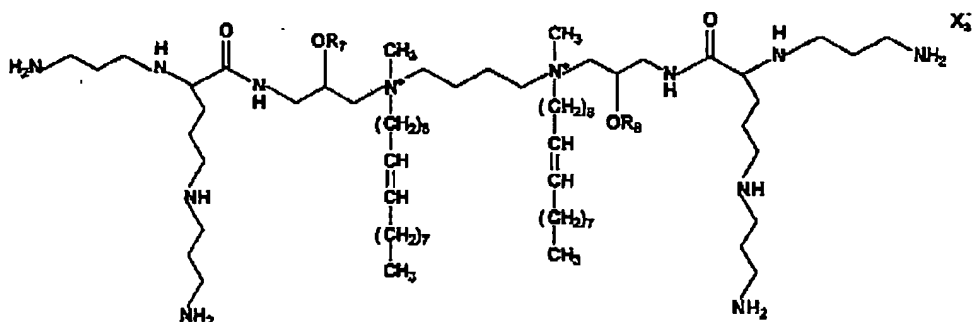
m and n are 0 or 1, when m is 1, the Q bonded to  $R_2$  is positively charged and when n is 1 the Q bonded to  $R_5$  is positively charged;

l is an integer selected from 1 to about 4; and

p is an integer from 1 to about 10.

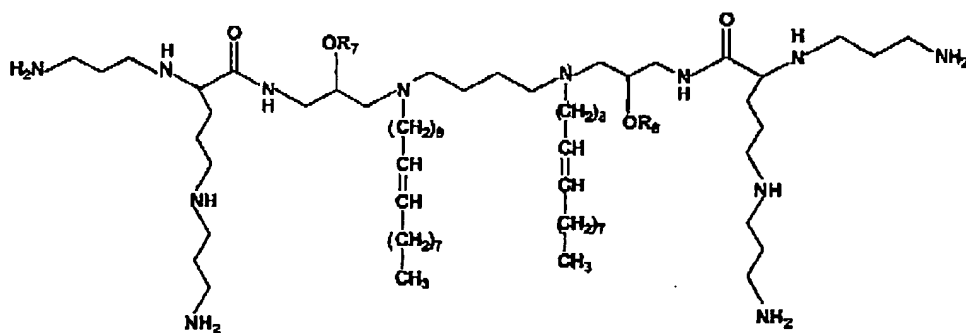
22. (Previously presented) The compound as claimed in claim 21 wherein  $R_7$  and  $R_8$  are H.

23. (Previously presented) The compound as claimed in claim 21 which is:



24. (Previously presented) The compound according to claim 23, wherein  $\text{R}_7$  and  $\text{R}_8$  are H.

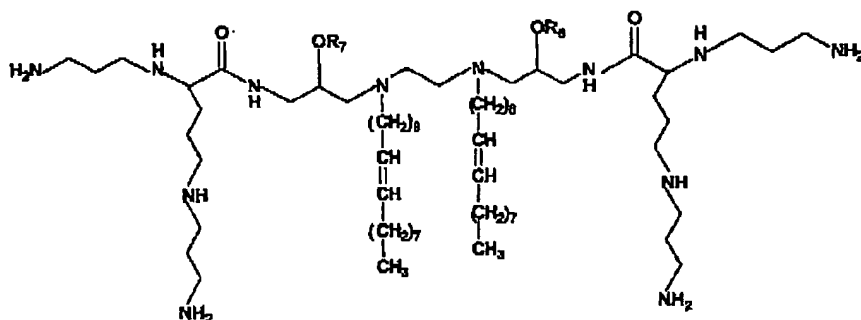
25. (Previously presented) The compound according to claim 21, which is



26. (Previously presented) The compound as claimed in claim 25, wherein  $\text{R}_7$  and  $\text{R}_8$  are H.

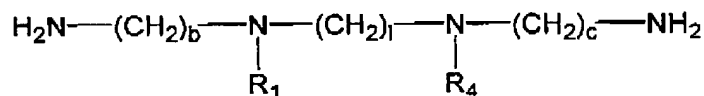
27. (Previously presented) The compound as claimed in claim 21, which is





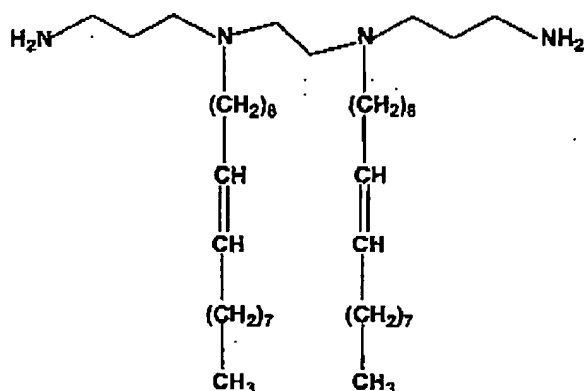
28. (Previously presented) The compound as claimed in claim 27, wherein  $R_7$  and  $R_8$  are H.

29. (Previously presented) A compound having the formula:

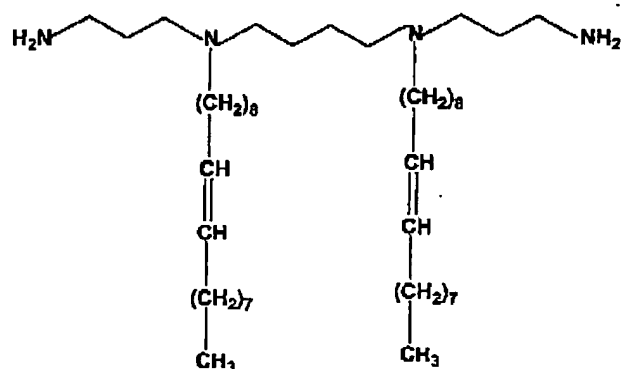


wherein each of  $R_1$  and  $R_4$  is a  $-(\text{CH}_2)_8-\text{CH}=\text{CH}-(\text{CH}_2)_7-\text{CH}_3$  group; and  $l$ ,  $b$ , and  $c$  are integers independently selected from 1 to about 4.

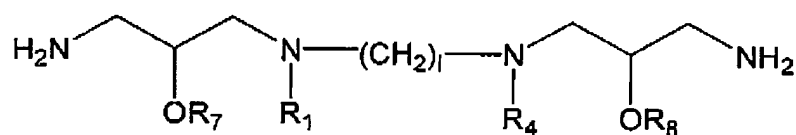
30. (Previously presented) The compound as claimed in claim 29, which is:



31. (Previously presented) The compound as claimed in claim 29, which is:



32. (Currently amended) A compound having the formula:



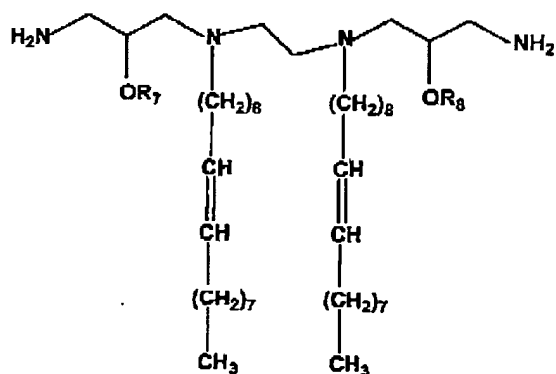
wherein

each of  $R_1$  and  $R_4$  is a straight-chain, branched, or cyclic alkenyl, or alkynyl, ~~or aryl~~ group having from about 8 to about 24 carbon atoms;

$R_7$  and  $R_8$  are independently H or a carbohydrate; and

$l$  is an integer independently selected from 1 to 4.

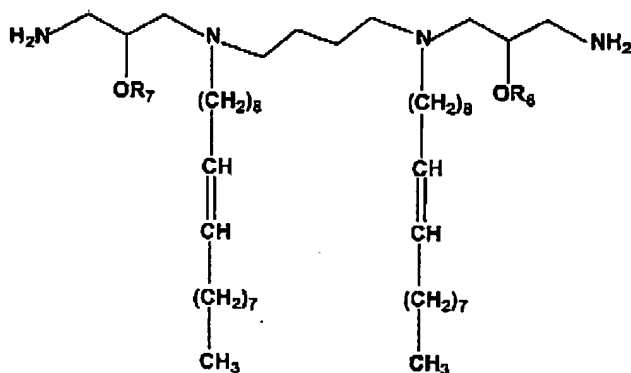
33. (Previously presented) The compound as claimed in claim 32, which is:



wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

34. (Previously presented) The compound as claimed in claim 33, wherein  $R_7$  and  $R_8$  are H.

35. (Previously presented) The compound as claimed in claim 32, which is:

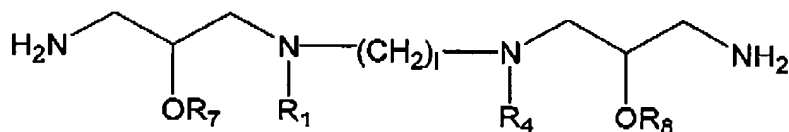


wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

36. (Previously presented) The compound as claimed in claim 35, wherein  $R_7$  and  $R_8$  are H.

37. (Canceled)

38. (Previously presented) A compound having the formula:



wherein

l is 4,

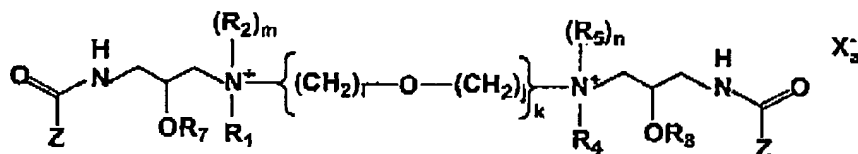
$R_1$  and  $R_4$  are straight-chain alkyl groups having 14 or 16 carbon atoms,  
and

$R_7$  and  $R_8$  are independently selected from H or a carbohydrate.

39. (Canceled)

40. (Previously presented) The compound as claimed in claim 38, wherein  $R_7$  and  $R_8$  are both H.

41. (Previously presented) A compound having the formula:



wherein

Z is selected from the group consisting of amine, spermyl, carboxyspermyl, guanidyl, spermidinyl, putricinyl, diaminoalkyl, pyridyl, piperidinyl, pyrrolidinyl, polyamine, amino acid, peptide and protein;

D is Q or a bond;

p is an integer from 1 to about 10;

$R_1$  and  $R_4$ , independently of one another, are selected from the group consisting of H,  $-(\text{CH}_2)_p-\text{D}-\text{Z}$ , an alkyl group, an alkenyl group, an aryl group, an alkynyl group, and an alkyl ether group wherein any one of  $R_1$  and  $R_4$  are optionally substituted by one or more of an alcohol, an aminoalcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, an alkylthio, a urea, a thiourea, a guanidyl, or a carbamoyl group,  $R_1$  and  $R_4$  may optionally be covalently linked with each other to form a cyclic moiety; and at least one of

$R_1$  and  $R_4$  is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from 8 to about 24 carbon atoms; and

$R_2$  and  $R_5$ , independently of one another, are selected from the group consisting of H, an alkenyl group, an alkynyl group, an aryl group and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide; an ester, a mercaptan, a urea, a thiourea, a guanidyl and a carbamoyl group;

$R_7$  and  $R_8$  are independently H or a carbohydrate;

$X^-$  is a physiologically acceptable anion;

$a$  is the number of positive charges in the compound divided by the valence of the anion;

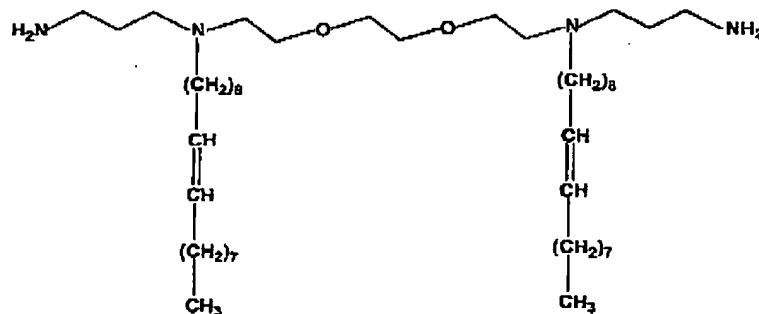
$m$  and  $n$  are 0 or 1;

$i$  and  $j$  are integers selected from 2 to about 3; and

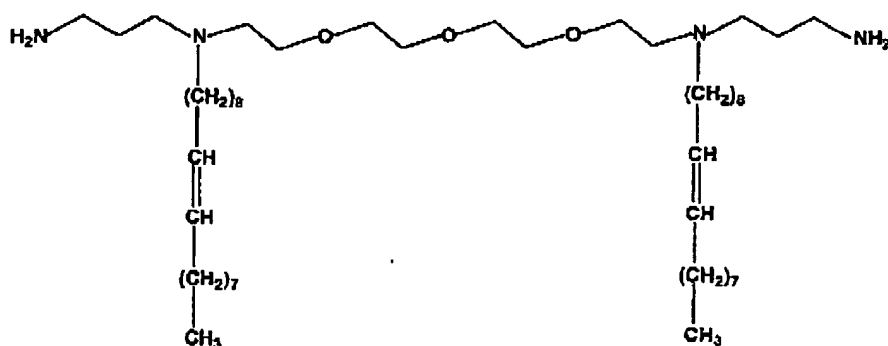
$k$  is an integer selected from 1 to about 3.

42. (Canceled)

43. (Previously presented) A compound having the formula:

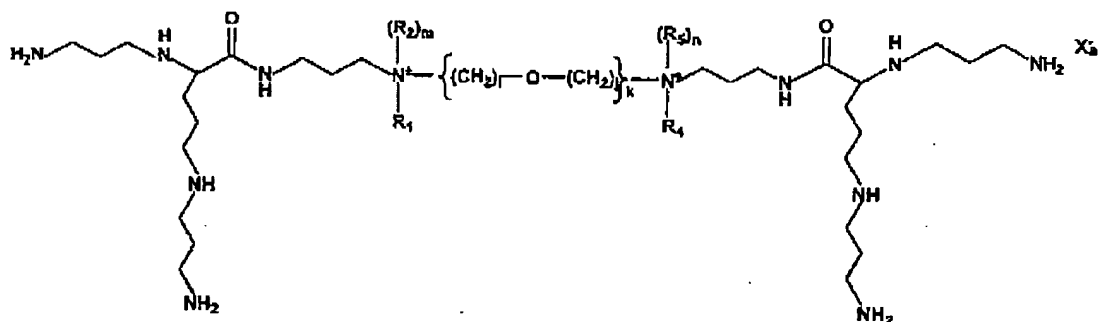


44. (Previously presented) A compound having the formula:



45. (Canceled)

46. (Previously presented) A compound having the formula:



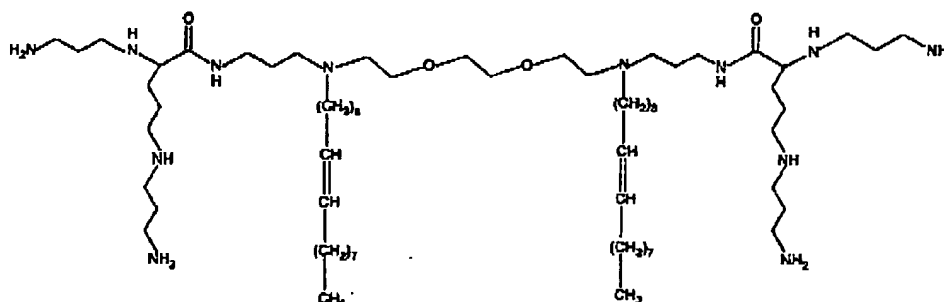
wherein

each of  $R_1$  and  $R_4$  is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

$R_2$  and  $R_5$ , independently of one another, are selected from the group consisting of a, an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

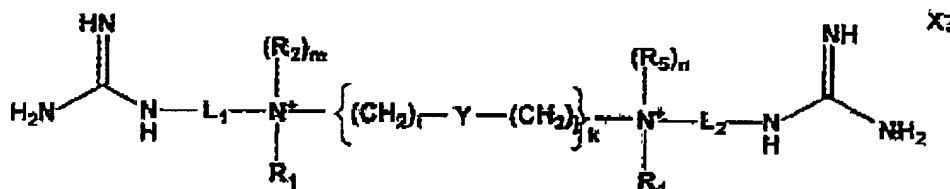
- $X^-$  is a physiologically acceptable anion;  
 $a$  is the number of positive charges in the compound divided by the valence of the anion;  
 $m$  and  $n$  are 0 or 1, when  $m$  is 1, the N bonded to  $R_2$  is positively charged and when  $n$  is 1, the N bonded to  $R_5$  is positively charged;  
 $i$  and  $j$  are integers selected from about 2 to about 3; and  
 $k$  is an integer selected from 1 to about 3.

47. (Previously Presented). The compound as claimed in claim 46, which is:



48. (Canceled)

49. (Previously presented) A compound having the formula:



wherein

each of  $R_1$  and  $R_4$  is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

$R_2$  and  $R_5$ , independently of one another, are selected from the group consisting of an alkenyl group, an aryl group, and an alkyl group optionally

substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

m and n are 0 or 1;

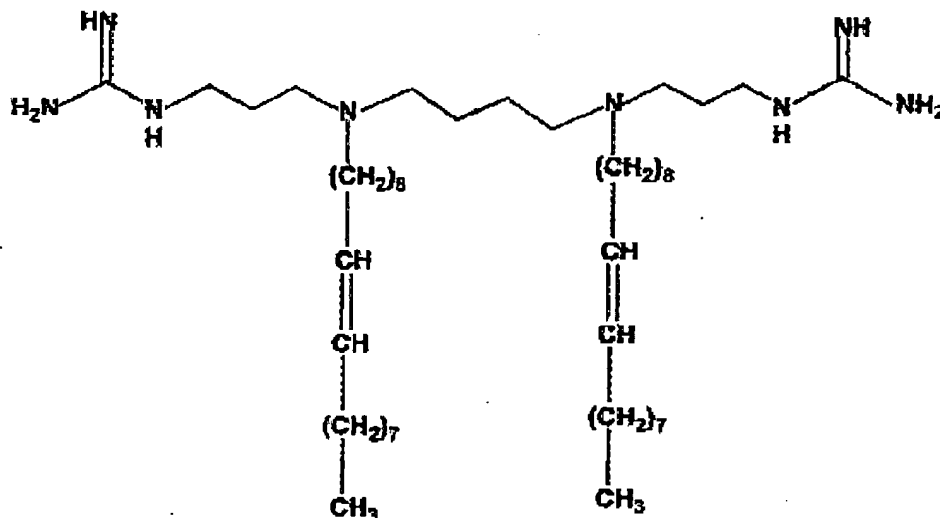
i and j are integers from about 2 to about 3;

k is an integer from 1 to about 3;

L<sub>1</sub> and L<sub>2</sub>, independently from one another, are an alkylene or an alkylene ether; and

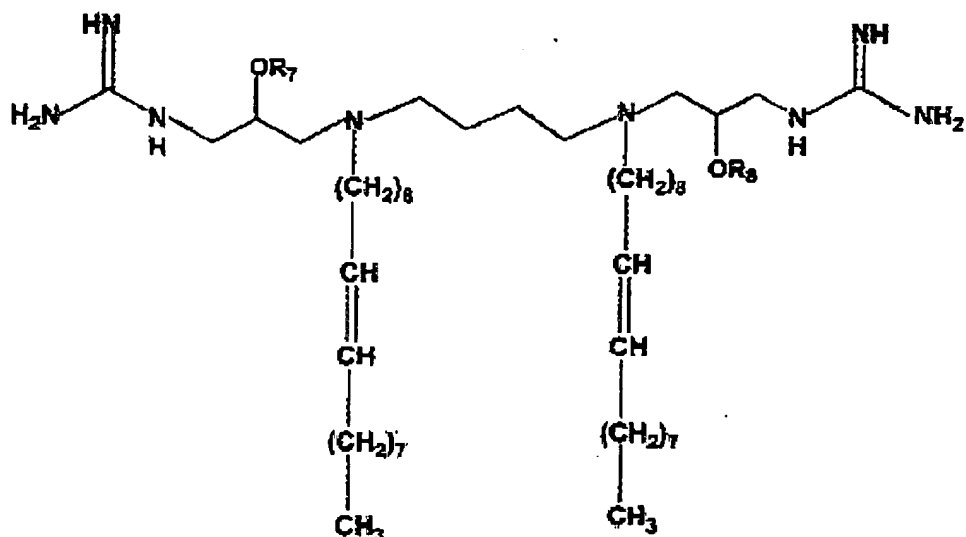
Y is selected from the group consisting of CH<sub>2</sub>, O, S and NH.

50. (Previously presented) The compound as claimed in claim 49, which is:



51. (Previously presented) A compound having the formula:

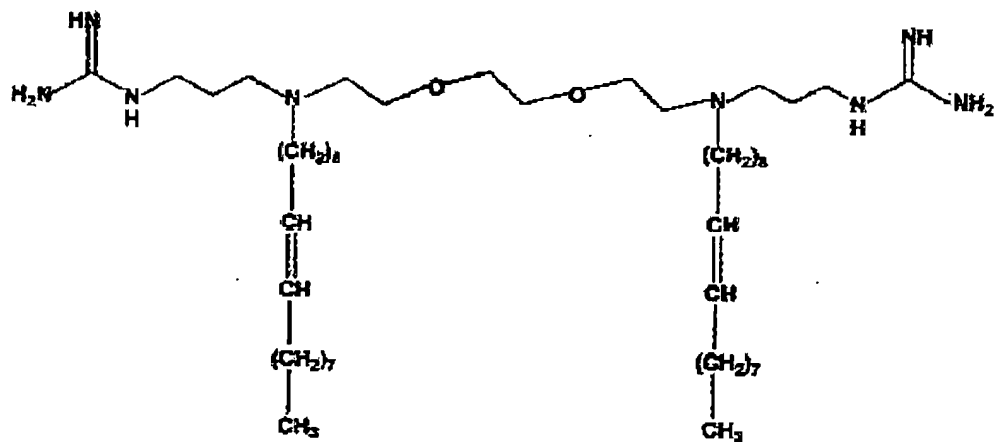




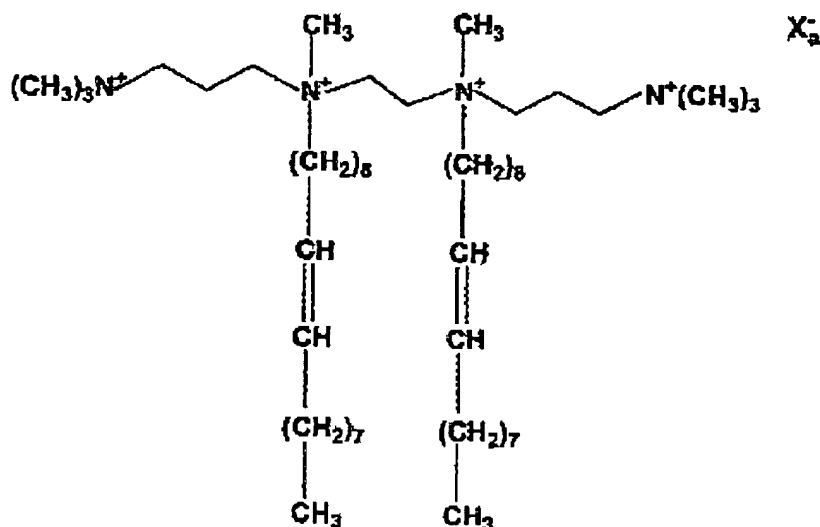
wherein R<sub>7</sub> and R<sub>8</sub> are independently H or a carbohydrate.

52. (Previously presented) The compound as claimed in claim 51, wherein R<sub>7</sub> and R<sub>8</sub> are H.

53. (Currently amended) A The compound as claimed in claim 49 having the formula:



54. (Previously presented) A compound having the formula:

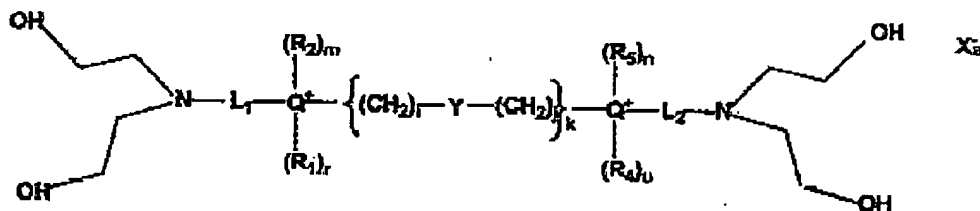


wherein

$\text{X}^-$  is a physiologically acceptable anion; and

$a$  is the number of positive charges in the compound divided by the valence of the anion.

55. (Previously presented) A compound having the formula:



wherein

$\text{Q}$  is  $\text{N}$ ;

$\text{X}^-$  is a physiologically acceptable anion;

$a$  is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion;

$\text{R}_1$  and  $\text{R}_4$ , independently of one another, are selected from the group consisting of  $\text{H}$ ,  $-(\text{CH}_2)_p\text{---D---Z}$ , an alkyl group, an alkyl ether group, an alkenyl

group, an aryl group, and an alkyl or alkyl ether group substituted by one or more of an alcohol, an aminoalcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, an alkylthio, a urea, a thiourea, a guanidyl, or a carbamoyl group,  $R_1$  and  $R_4$  may optionally be covalently linked with each other, to form a cyclic moiety; and at least one of  $R_1$  and  $R_4$  is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from 8 to about 24 carbon atoms;

$R_2$  and  $R_5$ , independently of one another, are selected from the group consisting of H, an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

Z is selected from the group consisting of amine, spermyl, spermidyl, carboxyspermyl, guanidyl, spermidinyl, putricinyl, pyridyl, piperidinyl, pyrrolidinyl, aminoacid, peptidyl, diaminoalkyl, and polyamine;

D is N, O, S, or a bond;

i and j are integers from about 2 to about 3;

k is an integer from 1 to about 3;

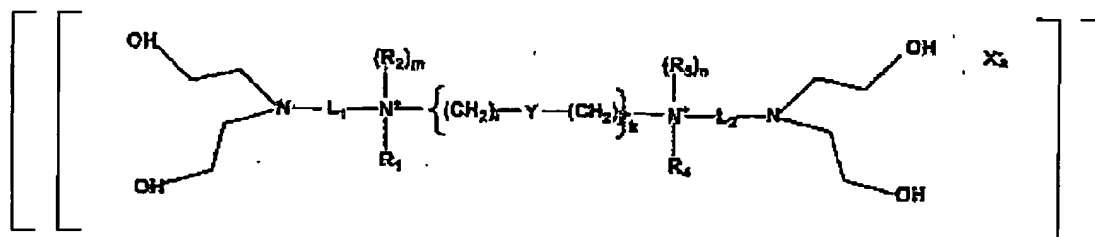
m, n, r and u are 0 or 1;

p is an integer from 1 to about 10;

$L_1$  and  $L_2$ , independently from one another, are an alkylene or an alkylene ether; and

Y is selected from the group consisting of  $\text{CH}_2$ , O, S and NH.

56. (Currently amended) A The compound as claimed in claim 55 having the formula:



wherein

~~X<sup>-</sup> is a physiologically acceptable anion;~~

~~a is the number of positive charges in the compound divided by the valence of the anion;~~

~~R<sub>1</sub> and R<sub>4</sub>, independently of one another, are straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl groups having from about 8 to about 24 carbon atoms;~~

~~R<sub>2</sub> and R<sub>5</sub>, independently of one another, are selected from the group consisting of H, an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;~~

~~m and n are 0 or 1;~~

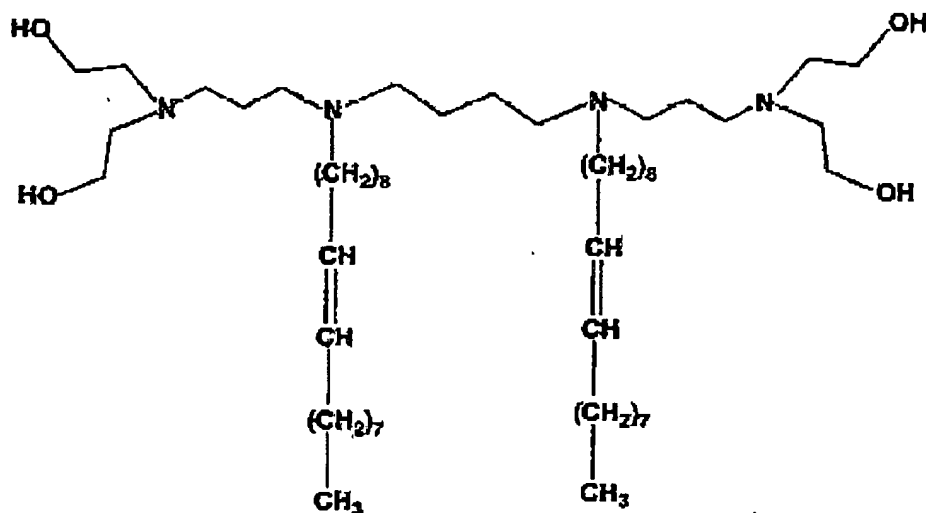
~~i and j are integers from about 2 to about 3;~~

~~k is an integer from 1 to about 3;~~

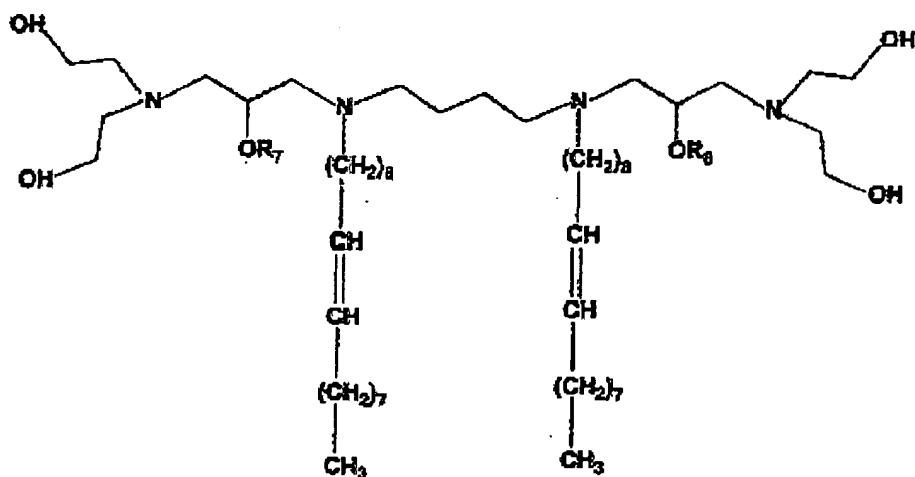
~~L<sub>1</sub> and L<sub>2</sub> independently from one another, are an alkylene or an alkylene ether; and~~

~~Y is selected from the group consisting of CH<sub>2</sub>, O, S and NH.~~

57. (Currently amended) A The compound as claimed in claim 55 having the formula:



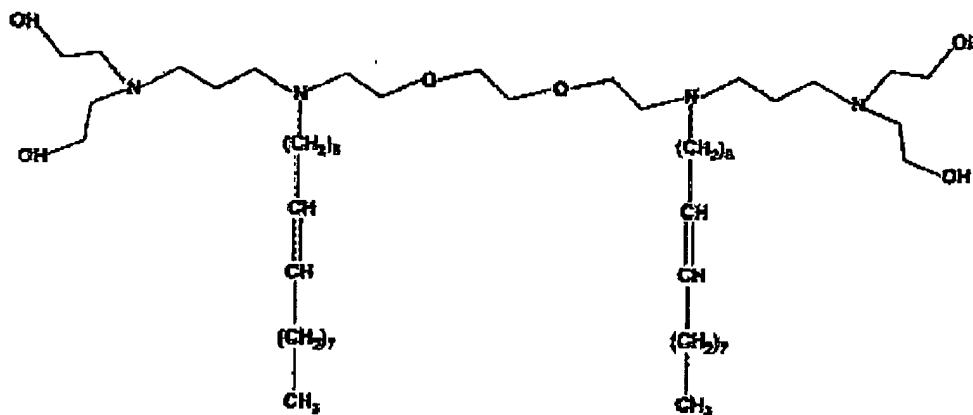
58. (Previously presented) A compound having the formula:



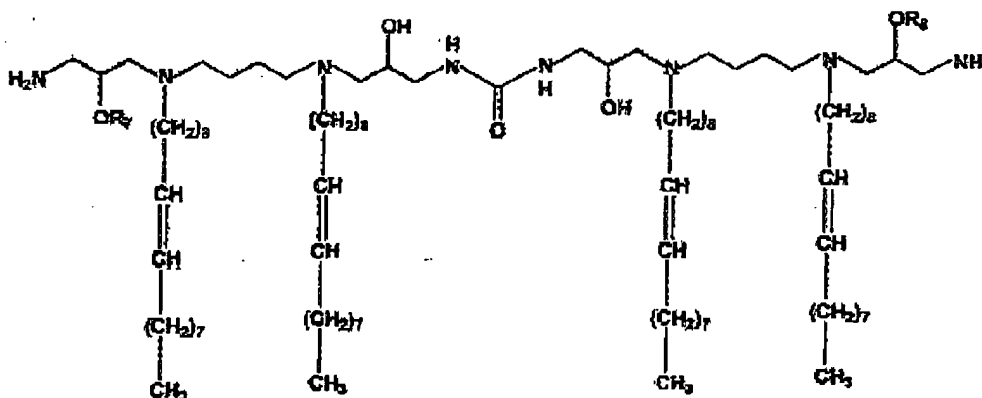
wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

59. (Previously presented) The compound as claimed in claim 58, wherein  $R_7$  and  $R_8$  are H.

60. (Currently amended) A The compound as claimed in claim 55 having the formula:



61. (Previously presented) A compound having the formula:

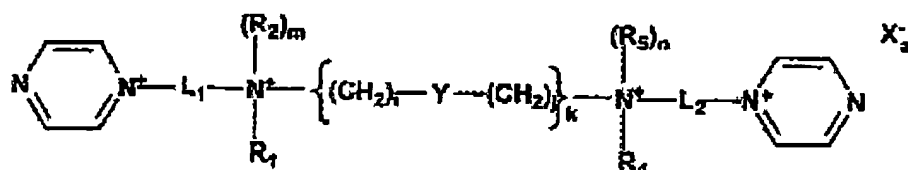


wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

62. (Previously presented) The compound as claimed in claim 61, wherein  $R_7$  and  $R_8$  are H.

63. (Canceled)

64. (Previously presented) A compound having the formula:



wherein

$\text{X}^-$  is a physiologically acceptable anion;

$a$  is the number of positive charges in the compound divided by the valence of the anion;

each of  $\text{R}_1$  and  $\text{R}_4$  is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

$\text{R}_2$  and  $\text{R}_5$ , independently of one another, are selected from the group consisting of an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

$m$  and  $n$  are 0 or 1;

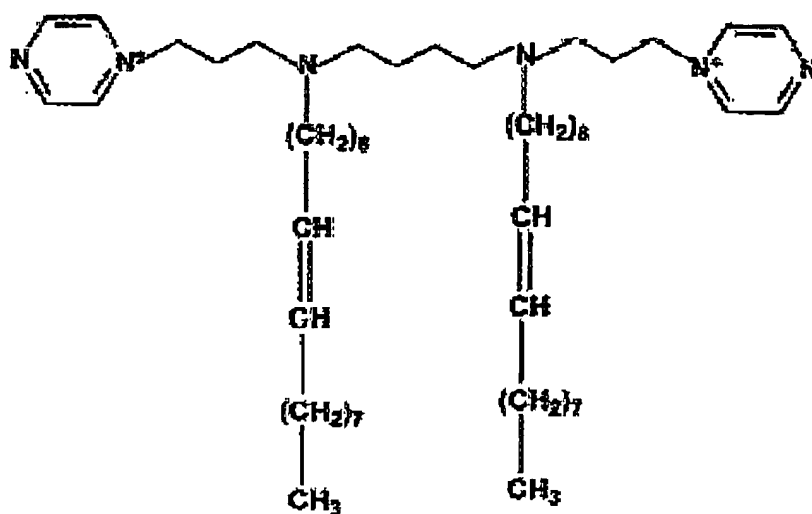
$i$  and  $j$  are integers from about 2 to about 3;

$k$  is an integer from 1 to about 3;

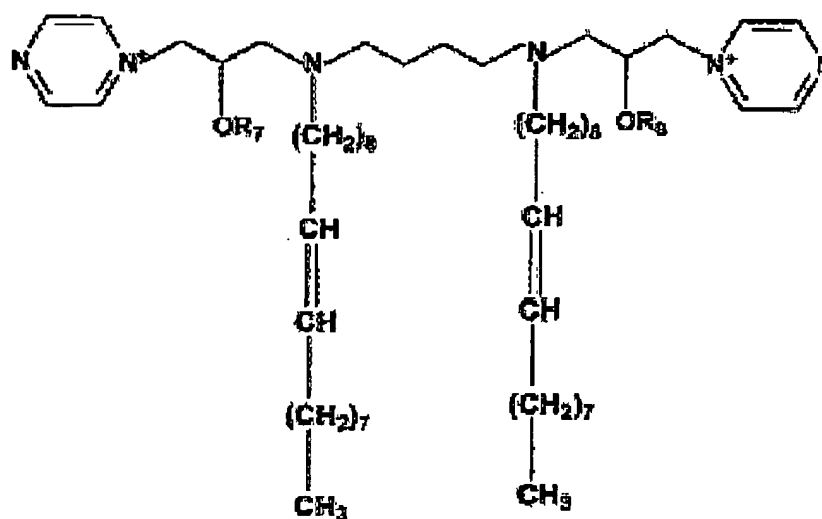
$\text{L}_1$  and  $\text{L}_2$ , independently from one another, are an alkylene or an alkylene ether; and

$\text{Y}$  is selected from the group consisting of  $\text{CH}_2$ ,  $\text{O}$ ,  $\text{S}$  and  $\text{NH}$ .

65. (Previously presented) The compound as claimed in claim 64, which is:



66. (Previously presented) A compound having the formula:

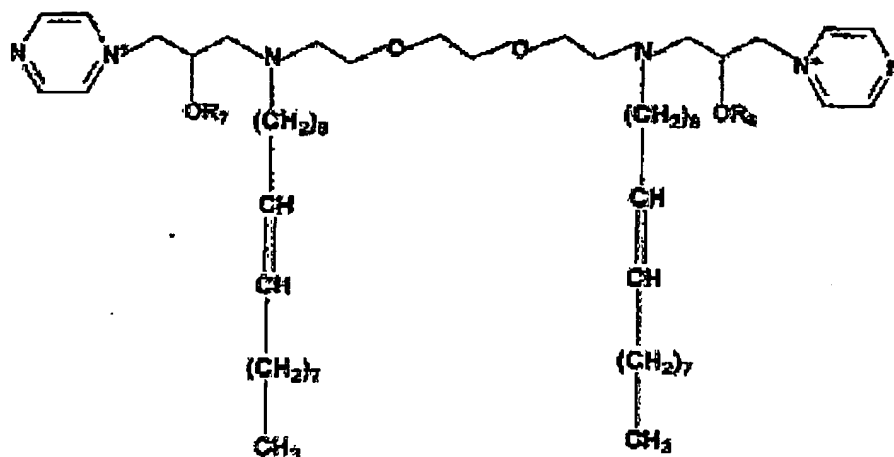


wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

67. (Previously presented) The compound as claimed in claim 66, wherein  $R_7$  and  $R_8$  are H.



68. (Previously presented) A compound having the formula:

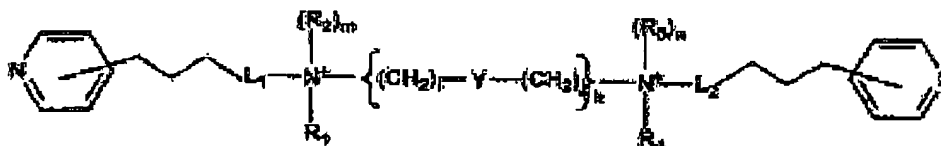


wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

69. (Previously presented) The compound as claimed in claim 68, wherein  $R_7$  and  $R_8$  are H.

70. (Canceled)

71. (Previously presented) A compound having the formula:



wherein

each of  $R_1$  and  $R_4$  is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

$R_2$  and  $R_5$ , independently of one another, are selected from the group consisting of an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a

polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

m and n are 0 or 1;

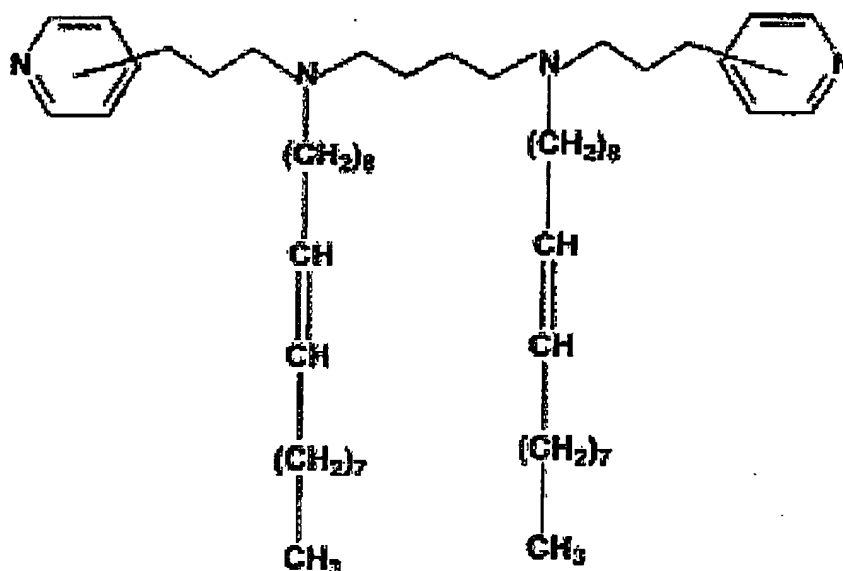
i and j are integers from about 2 to about 3;

k is an integer from 1 to about 3;

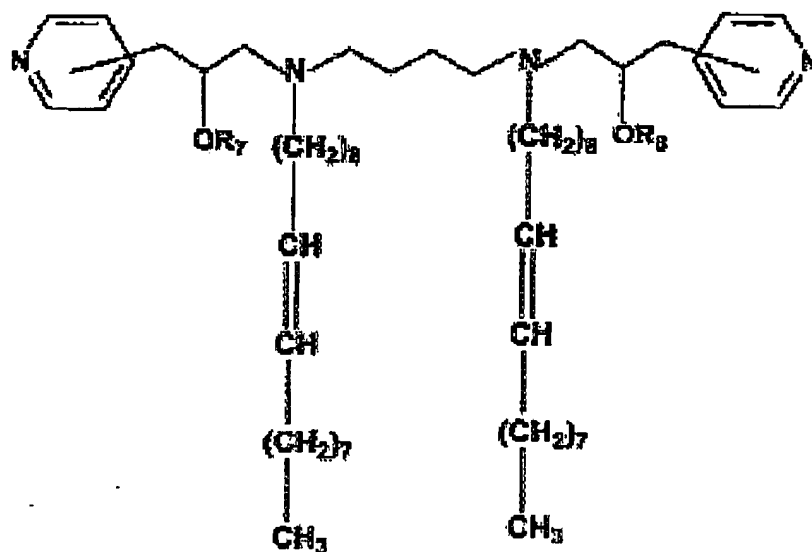
L<sub>1</sub> and L<sub>2</sub> independently from one another, are an alkylene or an alkylene ether; and

Y is selected from the group consisting of CH<sub>2</sub>, O, S and NH.

72. (Previously presented) The compound as claimed in claim 71, which is:



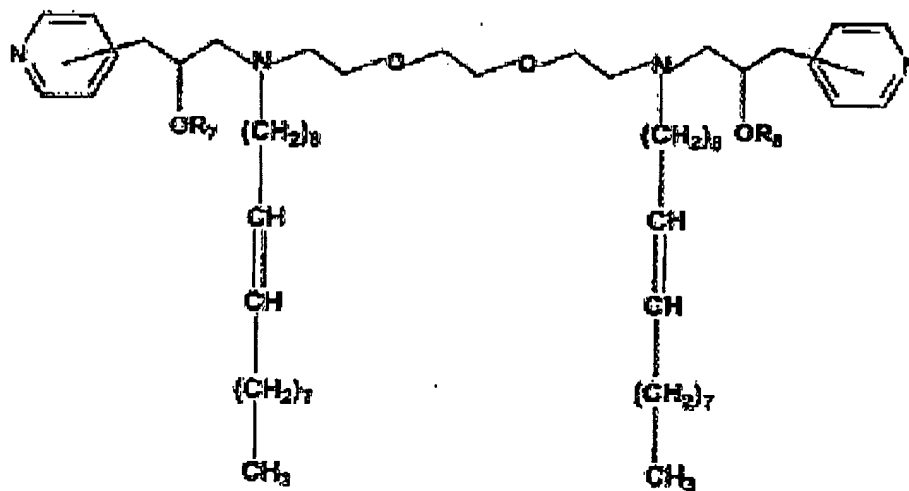
73. (Previously presented) A compound having the formula:



wherein  $\text{R}_7$  and  $\text{R}_8$  are independently H or a carbohydrate.

74. (Previously presented) The compound according to claim 73, wherein  $\text{R}_7$  and  $\text{R}_8$  are H.

75. (Previously presented) A compound having the formula:

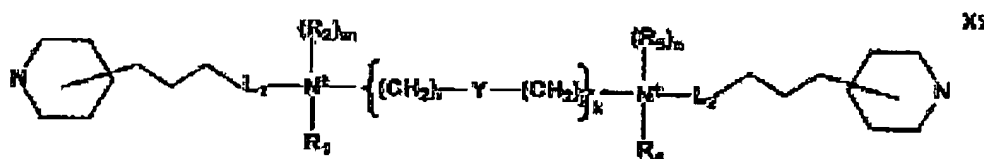


wherein  $\text{R}_7$  and  $\text{R}_8$  independently are H or a carbohydrate.

76. (Previously presented) The compound as claimed in claim 75, wherein  $R_7$  and  $R_8$  are H.

77. (Canceled)

78. (Previously presented) A compound having the formula:



wherein

$X^-$  is a physiologically acceptable anion;

$a$  is the number of positive charges in the compound divided by the valence of the anion;

each of  $R_1$  and  $R_4$  is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

$R_2$  and  $R_5$  independently of one another, are selected from the group consisting of an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

$m$  and  $n$  are 0 or 1;

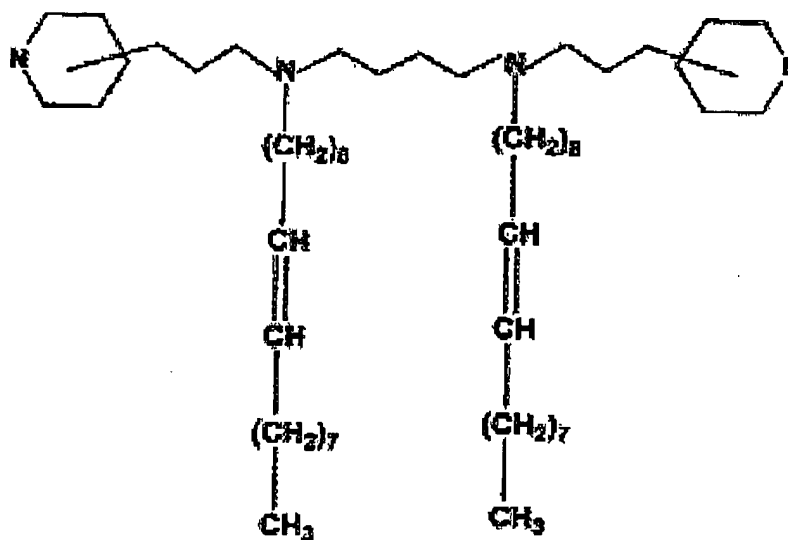
$i$  and  $j$  are integers from about 2 to about 3;

$k$  is an integer from 1 to about 3;

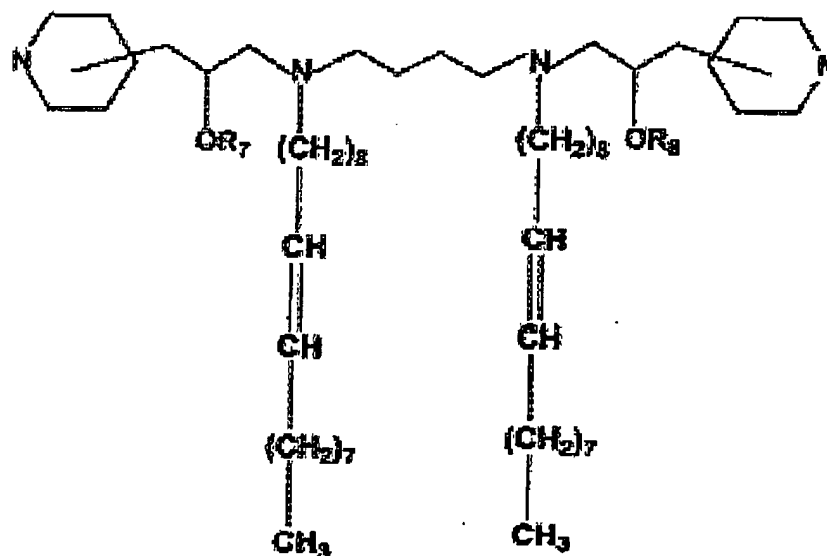
$L_1$  and  $L_2$ , independently from one another, are an alkylene or an alkylene ether; and

$Y$  is selected from the group consisting of  $CH_2$ , O, S and NH.

79. (Currently amended) A-The compound as claimed in claim 78 having the formula:



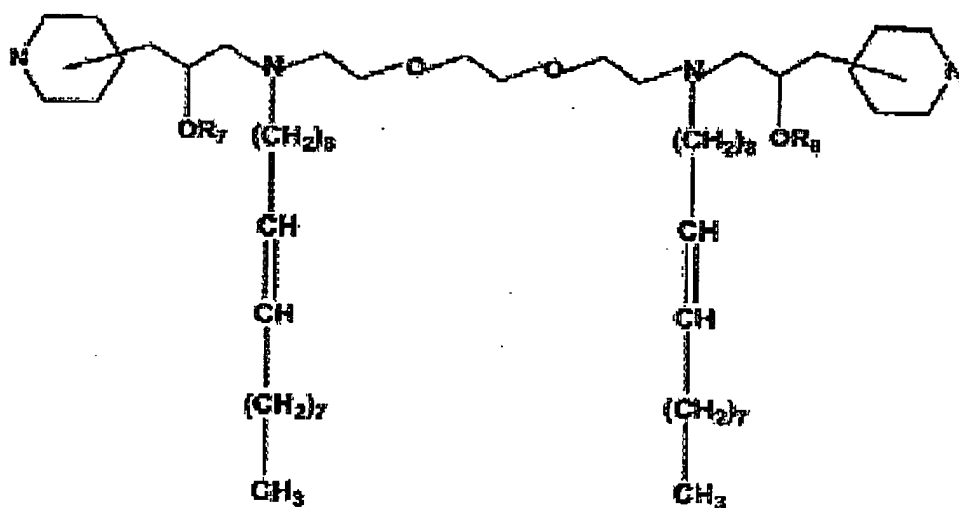
80. (Previously presented) A compound having the formula:



wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

81. (Previously presented) The compound as claimed in claim 80, wherein  $R_7$  and  $R_8$  are H.

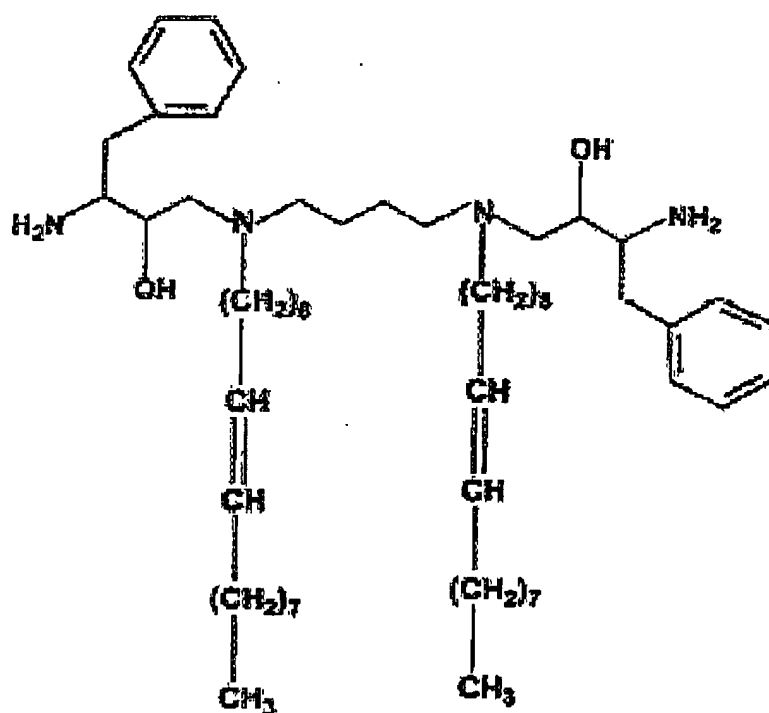
82. (Previously presented) A compound having the formula:



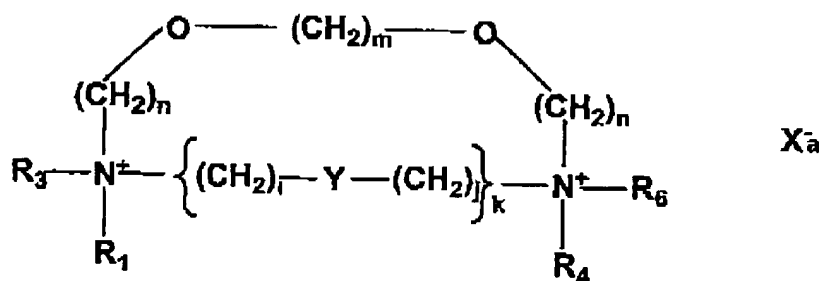
wherein  $R_7$  and  $R_8$  are independently H or a carbohydrate.

83. (Previously presented) The compound as claimed in claim 82, wherein  $R_7$  and  $R_8$  are H.

84. (Previously presented) A compound having the formula:



85. (Previously presented) A compound having the formula:



wherein

$\text{X}^-$  is a physiologically acceptable anion;

$a$  is the number of positive charges in the compound divided by the valence of the anion;

Y is selected from the group consisting of CH<sub>2</sub>, an ether, a polyether, an amide, a polyamide, an ester, a sulfide, a urea, a thiourea, a guanidyl, a carbamoyl, a carbonate, a phosphate, a sulfate, a sulfoxide, an imine, a carbonyl, and a secondary amino group and wherein Y is optionally substituted by -X<sub>1</sub>-L'-X<sub>2</sub>-Z or -Z;

R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>, and R<sub>6</sub>, independently of one another, are selected from the group consisting of H, -(CH<sub>2</sub>)<sub>p</sub>-D-Z, an alkyl group, an alkenyl group, an aryl group, an alkynyl group, and an alkyl ether group wherein any one of R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>, and R<sub>6</sub> are optionally substituted by one or more of an alcohol, an aminoalcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, an alkylthio, a urea, a thiourea, a guanidyl, or a carbamoyl group, and at least one of R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>, and R<sub>6</sub> is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from 6 to about 64 carbon atoms; and R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>, and R<sub>6</sub> may optionally be covalently linked with each other or with Y, to form a cyclic moiety;

Z is selected from the group consisting of amine, spermyl, carboxyspermyl, guanidyl, spermidyl, putrescyl, diaminoalkyl, pyridyl, piperidyl, pyrrolidyl, polyamine, amino acid, peptide, and protein;

X<sub>1</sub> and X<sub>2</sub>, independently of one another, are selected from the group consisting of NH, O, S, alkylene, and arylene;

L' is selected from the group consisting of alkylene, alkenylene, alkynylene, arylene, alkylene ether, and polyether;

D is O, S, or a bond;

m and n are 0 or 1; and

i, j, k, l and p are integers from 1 to about 10.

86. (Previously presented) The compound as claimed in claim 85, wherein at least one of R<sub>1</sub> and R<sub>4</sub> is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms.



87. (Previously presented) The compound as claimed in claim 85, wherein the alkyl ether optionally substituted by one or more alcohol groups is a carbohydrate.

88. (Previously presented) The compound as claimed in claim 87, wherein the carbohydrate is selected from the group consisting of galactose, fructose, glucose, maltose, sucrose, cellobiose, lactose, mannose, glucopyranose, mannopyranose and galactopyranose.

89. (Previously presented) The compound as claimed in claim 85, wherein Y is selected from the group consisting of CH<sub>2</sub>, an ether, a polyether, an amide, a polyamide, an ester, a sulfide, a urea, a thiourea, a guanidyl, a carbamoyl, a carbonate, and a secondary amino group.

90. (Previously presented) The compound as claimed in claim 89, wherein at least one of R<sub>1</sub> and R<sub>4</sub> is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms.

91. (Previously presented) The compound as claimed in claim 89, wherein the alkyl ether optionally substituted by one or more alcohol groups is a carbohydrate.

92. (Previously presented) The compound as claimed in claim 91, wherein the carbohydrate is selected from the group consisting of galactose, fructose, glucose, maltose, sucrose, cellobiose, lactose, mannose, glucopyranose, mannopyranose and galactopyranose.

93-100. (Canceled)

101. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138.

102. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one additional component selected from the group consisting of a cell, cells, a cell culture, a cell culture media, a neutral lipid, a nucleic acid, and a transfection enhancer.

103. (Canceled)

104. (Currently amended) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138.

105. (Canceled)

106. (Canceled)

107. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one additional component selected from the group consisting of a cell, cells, a cell culture medium, a nucleic acid, a transfection, enhancer and instructions for transfecting a cell or cells.

108. (Currently amended) A method for introducing a polyanion into a cell or cells, said method comprising forming a lipid aggregate from a positively charged compound of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138, contacting the lipid aggregate with a

polyanion to form a positively-charged polyanion-lipid aggregate complex and incubating the complex with a cell or cells.

109. (Currently amended) A method for introducing a biologically active substance into a cell, said method comprising forming a lipid aggregate of a compound of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, ~~75~~, 78, 85, ~~89~~ and 114 or 138 and a biologically active substance and incubating the lipid aggregate with a cell or cell culture.

110. (Canceled)

111. (Previously presented) A compound which is:

$N^1, N^4$ -dipalmitoyl- $N^1, N^4$ -di-[2-hydroxy-3-(N-aminopropyl)]-diaminobutane;  
 $N^1, N^4$ -distearyl- $N^1, N^4$ -di-[2-hydroxy-3-(N-aminopropyl)]-diaminobutane;  
 $N^1, N^4$ -dilauryl- $N^1, N^4$ -di-[2-hydroxy-3-(N-aminopropyl)]-diaminobutane;  
 $N^1, N^2$ -dimyristyl- $N^1, N^2$ -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;  
 $N^1, N^2$ -dipalmityl- $N^1, N^2$ -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;  
 $N^1, N^2$ -dipalmitoyl- $N^1, N^2$ -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;  
 $N^1, N^2$ -distearyl- $N^1, N^2$ -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;  
 $N^1, N^2$ -dilauryl- $N^1, N^2$ -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;  
 $N^1, N^8$ -dimyristyl- $N^1, N^8$ -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;  
 $N^1, N^8$ -dipalmityl- $N^1, N^8$ -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;  
 $N^1, N^8$ -dipalmitoyl- $N^1, N^8$ -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;  
 $N^1, N^8$ -distearyl- $N^1, N^8$ -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;  
 $N^1, N^8$ -dilauryl- $N^1, N^8$ -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;  
 $N^1, N^8$ -dioleoyl- $N^1, N^8$ -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;  
 $N^1, N^4$ -dimyristyl- $N^1, N^4$ -di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;  
 $N^1, N^4$ -dipalmityl- $N^1, N^4$ -di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;

N<sup>1</sup>,N<sup>4</sup>-dipalmitoyl-N<sup>1</sup>,N<sup>4</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;

N<sup>1</sup>,N<sup>4</sup>-distearyl-N<sup>1</sup>,N<sup>4</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;

N<sup>1</sup>,N<sup>4</sup>-dilauryl-N<sup>1</sup>,N<sup>4</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;

N<sup>1</sup>,N<sup>8</sup>-dimyristyl-N<sup>1</sup>,N<sup>8</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N<sup>1</sup>,N<sup>8</sup>-dipalmityl-N<sup>1</sup>,N<sup>8</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N<sup>1</sup>,N<sup>8</sup>-dipalmitoyl-N<sup>1</sup>,N<sup>8</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N<sup>1</sup>,N<sup>8</sup>-distearyl-N<sup>1</sup>,N<sup>8</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N<sup>1</sup>,N<sup>8</sup>-dilauryl-N<sup>1</sup>,N<sup>8</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N<sup>1</sup>,N<sup>8</sup>-dioleyl-N<sup>1</sup>,N<sup>8</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N<sup>1</sup>,N<sup>2</sup>-dimyristyl-N<sup>1</sup>,N<sup>2</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane;

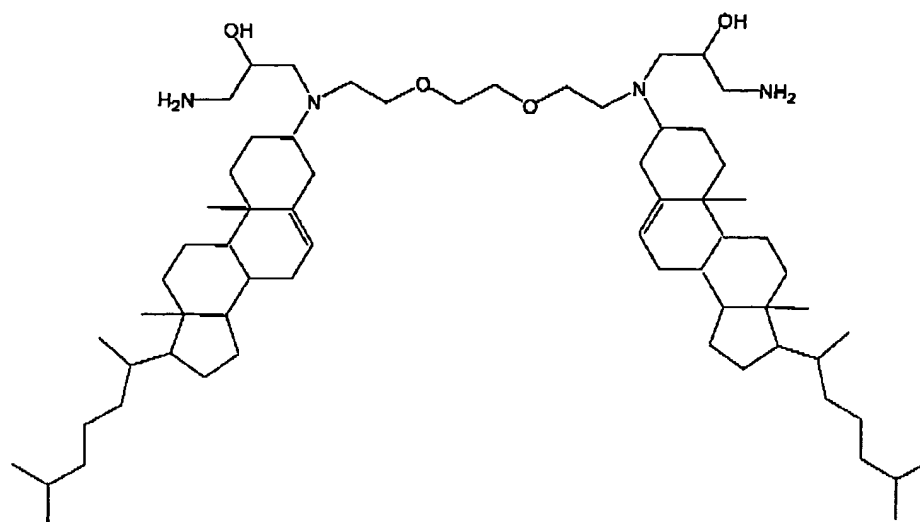
N<sup>1</sup>,N<sup>2</sup>-dipalmityl-N<sup>1</sup>,N<sup>2</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane;

N<sup>1</sup>,N<sup>2</sup>-dipalmitoyl-N<sup>1</sup>,N<sup>2</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane;

N<sup>1</sup>,N<sup>2</sup>-distearyl-N<sup>1</sup>,N<sup>2</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane; or

N<sup>1</sup>,N<sup>2</sup>-dilauryl-N<sup>1</sup>,N<sup>2</sup>-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane.

112. (Previously presented) A compound which is:



113.-116. (Canceled)

117. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one additional lipid aggregating compound.

118. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one additional lipid aggregating compound, ~~where the additional lipid aggregating forming compound is selected from at least one of~~ DOPE, DOPC or cholesterol.

119. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one neutral lipid or at least one other cationic lipid.

120. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one cationic lipid, ~~where the cationic lipid is selected from the group consisting of DOSPA, DOTMA, DMRIE, DOTAP, DOGS and TM-TPS.~~

121. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138.

122. (Currently amended) A kit comprising one or more compounds of any one of claims 1 claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one additional lipid aggregating forming compound.

123. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one additional lipid aggregating forming compound, ~~where the additional lipid aggregating forming compound is selected from at least one of DOPE, DOPC or cholesterol.~~

124. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one neutral lipid or at least one other cationic lipid.

125. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one other cationic lipid, ~~where the cationic lipid is selected from the group consisting of DOSPA, DOTMA, DMRIE, DOTAP, DOGS and TM-TPS.~~

126. (Currently presented) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one additional lipid aggregating forming compound.

127. (Currently amended) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one additional lipid aggregating forming compound, ~~where the additional lipid aggregating forming compound is selected from at least one of~~ DOPE, DOPC or cholesterol.

128. (Currently amended) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one neutral lipid or at least one other cationic lipid.

129. (Currently amended) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one other cationic lipid selected from the group consisting of DOSPA, DOTMA, DMRIE, DOTAP, DOGS and TM-TPS.

130. Canceled

131. Canceled

132. Canceled

133. (Currently amended) A kit comprising ~~the a~~ lipid aggregate of claim 128 comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33,

35, 38, 41, 46, 49, 55, 64, 71, 78, 85, and 138 and at least one neutral lipid or at least one other cationic lipid.

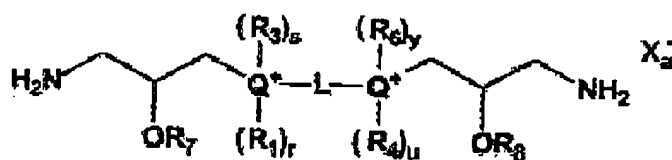
134. Canceled

135. (Currently amended) The compound of claim 12 wherein  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , independently of one another, are selected from the group consisting of H, and an alkyl group and at least two of  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , are straight-chain alkyl groups having from 8 to about 24 carbon atoms attached to each N.

136. (Currently amended) The compound of claim 135 wherein at least two of  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , are straight-chain alkyl groups having from 14 or 16 carbon atoms attached to each N.

137. (Canceled)

138. (New) A compound having the formula:



where:

Q is N;

L is a bivalent organic radical covalently linking each Q;

r, s, u and y are 0 or 1;

$\text{X}^-$  is a physiologically acceptable anion;

a is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion;

$R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , independently of one another, are selected from the group consisting of H, an alkyl group, an alkenyl group, an alkynyl group, and an



aryl group, wherein any one of  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$  are optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group, and at least two of  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , are straight-chain, branched, or cyclic alkyl, alkynyl, or alkenyl groups having from 8 to 24 carbon atoms attached to each N and  $R_1$ ,  $R_3$ ,  $R_4$  and  $R_6$  are optionally covalently linked with each other; and

$R_7$  and  $R_8$  are independently H or a carbohydrate.

139. (New) The compound of claim 138 wherein  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , independently of one another, are selected from the group consisting of H, an alkyl group, an alkenyl group, or an alkynyl group.

140. (New) The compound of claim 138 wherein  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$ , independently of one another, are selected from the group consisting of H, and an alkyl group.

141. (New) The compound of claim 138 wherein  $R_7$  and  $R_8$  are H.

142. (New) The compound of claim 138 wherein two of  $R_1$ ,  $R_3$ ,  $R_4$ , and  $R_6$  are alkyl groups having 14 or 16 carbons.